Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-39. (cancelled)

40. (currently amended) A method for the deposition of semiconductor layers comprising SiC and/or SiC_xGe_{1-x} (0</=x</=1), A1N, GaN by a CVD method, wherein:

at least one substrate is located within and is heated by an actively heated flow channel reactor to a temperature of approximately 1100°C to approximately 1800°C;

the at least one substrate rotates in the actively heated flow channel reactor, and the heating by the reactor is accomplished by an elevated temperature of heated walls of a chamber of the reactor on all sides of the reactor chamber;

the coating takes place homoepitaxially or heteroepitaxially;

at least one process or carrier gases is introduced via a gas inlet of the reactor just ahead of the hot substrate, and wherein an opening of the inlet extends in a direction transverse to a plane of a front surface of the substrate for

directing the gases to flow in a horizontal direction parallel to and past the front surface of the substrate;

the flow channel reactor includes a holder for holding the substrate during the heating of the substrate, and the substrate holder is heated actively during the heating of the substrate; ~~and wherein~~

the one or more process or carrier gases, before being introduced via the inlet into the reactor chamber, are actively cooled to a temperature which is well below process temperature that is present within the reactor chamber, so that premature decomposition of process gases and/or local supersaturation of gas stream with a decomposition product is avoided;

an insulation segment comprising highly insulating temperature-resistant material is disposed between and spatially separates the gas inlet and the reactor;

the gases flow in the horizontal direction within the gas inlet, across the insulation segment and through the reactor; and wherein

a high horizontal temperature gradient within the gases exists across the insulation segment and substantially no horizontal temperature gradient within the gases exists within the reactor chamber.

41. (currently amended) The method according to claim 40, wherein the at least one substrate is disposed on at least one substrate holder plate, which is disposed

in or on a substrate holder, and the at least one substrate holder plate is driven relative to the substrate holder by “gas foil rotation”.

42. (previously presented) The method according to claim 40, wherein silane (SiH_4) or other Si-containing inorganic and organic starting materials, germane (GeH_4) and propane (C_3H_8) or other hydrocarbon gases are used as the process gas(es).

43. (currently amended) The method according to claim 41, wherein by complete decomposition of source gases ahead of or above the at least one substrate, on account of a homogeneous temperature profile of the substrate holder, so that growth rates of 10 µm/h or more are achieved for the SiC and/or SiC_xGe_{1-x} ~~(x=0-1)~~ (0</=x</=1) semiconductor layers.

44. (previously presented) The method according to claim 40, wherein reduction of Si cluster and seed formation in the gas stream is achieved by low temperature gradients perpendicular to the at least one substrate.

45. (previously presented) The method according to claim 40, wherein the layers are deposited at process pressures of between 10 - 1000 mbar.

46. (currently amended) A device for producing semiconductor layers comprising SiC, SiC_xGe_{1-x} (0</=x</=1), A1N, GaN, by a vapor-phase application method, particularly a CVD method, comprising:

an actively heated flow channel reactor chamber which has at least one gas inlet for reaction gases, active heating of the reactor chamber being accomplished by an elevated temperature of heated walls of the reactor chamber on all sides of the reactor chamber;

a rotatable substrate holder on which at least one substrate is disposed horizontally upon insertion of the substrate into the reactor chamber;

the gas inlet being disposed just ahead of the substrate holder, wherein an opening of the inlet extends transversely to a location of a front surface of a substrate;

a gas outlet, the gas inlet and the gas outlet providing for a stream of the reaction gasses, and wherein the gas stream flows in a horizontal direction past the substrate holder;

a heater device which heats the substrate holder and thereby surfaces of the substrate holder which are to be coated, in a controlled manner to temperatures of from 1100°C to 1800°C;

at least one temperature control device for controlling a heating of wall regions of the reactor chamber which lie opposite and above the substrate, of which surfaces are to be coated, to high temperatures; ~~and wherein~~

the gas inlet is actively cooled to a temperature which is well below process temperature that is present within the reactor chamber for cooling the reaction gasses before entry into the reactor chamber;

an insulation segment comprising highly insulating temperature-resistant material disposed between and spatially separating the gas inlet and the reactor chamber;

wherein the gas stream flows in the horizontal direction within the gas inlet, across the insulation segment and through the reactor chamber; and

wherein a high horizontal temperature gradient within the gases exists across the insulation segment and substantially no horizontal temperature gradient within the gases exists within the reactor chamber.

47. (previously presented) The device according to claim 46, wherein the reactor chamber is constructed in rotationally symmetrical form and the gas inlet is a central gas inlet and the gas outlet is a rotationally symmetrical gas outlet.

48. (previously presented) The device according to claim 46, wherein boundary walls of the reactor chamber which face reactor space, and at least one substrate plate and/or at least one said substrate holder have a continuous, inert coating, particularly comprising TaC, NbC, which is able to withstand high temperatures of up to 1800°C and cannot be etched by hydrogen radicals.

49. (previously presented) The device according to claim 46, further comprising a turning device for rotation of the at least one substrate in each case on a substrate plate which is disposed in or on a substrate holder, by means of “gas foil rotation”.

50. (previously presented) The device according to claim 46, further comprising a turning device for rotation of the at least one substrate in each case on a substrate plate, which is disposed in or on a substrate holder, by means of a mechanically driven shaft.

51. (previously presented) The device according to claim 46, wherein the at least one temperature control device provides a uniform or different temperature to all reactor-chamber boundary walls facing process gas, as top side, underside and side walls of a heated flow channel which is enclosed by the walls.

52. (previously presented) The device according to claim 46, further comprising a combination of high-frequency, lamp and resistance heating means for heating the boundary walls which face process gas, and particularly the substrate holder.

53. (previously presented) The device according to claim 51, wherein separate control of temperature of a substrate-side boundary wall from an opposite

boundary wall of the heated flow channel is effected by two separate heating circuits, each with a dedicated control means.

54. (previously presented) The device according to claim 51, wherein boundary walls, which face the process gas, of the heated flow channel, and particularly a substrate plate and/or the substrate holder, are made from a highly conductive material.

55. (previously presented) The device according to claim 51, wherein boundary walls, which face the process gas, of the heated flow channel, and particularly the substrate plate and/or the substrate holder, have a continuous, inert coating which is able to withstand high temperatures up to approximately 1800°C and cannot be etched by hydrogen radicals.

56. (previously presented) The device according to claim 46, further comprising a cooling device that actively cools the gas inlet, up to just before a heated flow channel, with a liquid or gaseous medium.

57. (currently amended) The device according to claim 56, wherein the cool gas inlet is sealed with respect to the flow channel which is heated on all sides, sealing

of the cool gas inlet being accomplished by means of the insulation segment ~~a highly insulating, narrow adapter piece~~.

58. (previously presented) The device according to claim 46, wherein a flow channel, downstream of an actively heated zone, comprises outlet segments which have different inert materials.

59. (previously presented) The device according to claim 46, further comprising thin plates, compared to thickness of the substrate holder, of inert materials with a different electrical conductivity from the substrate holder, wherein the thin plates are fitable on or in the substrate holder, in order to locally influence introduction of high frequency and thereby input of energy.

60. (previously presented) The device according to claim 54, wherein the boundary wall, which lies opposite the at least one substrate, of the heated flow channel is installed in a fixed position, at a defined distance from a substrate-side boundary of the heated flow channel, or is rotatably connected thereto.

61. (previously presented) The device according to claim 46, wherein a boundary wall of the reactor chamber, which lies opposite the at least one substrate, of a heated flow channel is actively coolable by a gaseous medium.

62. (previously presented) The device according to claim 46, wherein there is a plurality of said at least one substrate which are disposed horizontally adjacent each other.

63. (previously presented) The device according to claim 54, wherein the conductive material is graphite.

64. (previously presented) The device according to claim 55, wherein said inert coating is TaC, or NbC.

65. (previously presented) The device according to claim 58, wherein the different inert materials are TaC-coated graphite, SiC-coated graphite, quartz.

66. (previously presented) The device according to claim 59, wherein the inert materials are Ta, Mo, W.

67. (currently amended) A method for the deposition of semiconductor layers comprising SiC and/or SiC_xGe_{1-x} (0</=x</=1), A1N, GaN by a CVD method, wherein:

at least one substrate is located within and is heated by an actively heated flow channel reactor to a temperature of approximately 1100°C to approximately 1800°C;

the heating by the reactor is accomplished by an elevated temperature of heated walls of a chamber of the reactor on all sides of the reactor chamber;

at least one process or carrier gases is introduced via a gas inlet of the reactor just ahead of the hot substrate, and wherein an opening of the inlet extends in a direction transverse to a plane of a front surface of the substrate for directing the gases to flow in a horizontal direction parallel to and past the front surface of the substrate;

the flow channel reactor includes a holder for holding the substrate during the heating of the substrate, and the substrate holder is heated actively during the heating of the substrate; ~~and wherein~~

the one or more process or carrier gases, before being introduced via the inlet into the reactor chamber, are actively cooled to a temperature which is well below process temperature that is present within the reactor chamber, so that premature decomposition of process gases and/or local supersaturation of gas stream with a decomposition product is avoided;

an insulation segment comprising highly insulating temperature-resistant material is disposed between and spatially separates the gas inlet and the reactor;

the gases flow in the horizontal direction within the gas inlet, across the insulation segment and through the reactor; and wherein

a high horizontal temperature gradient within the gases exists across the insulation segment and substantially no horizontal temperature gradient within the gases exists within the reactor.